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A POPULAR TREATISE ON THE COMMON INDIAN
SNAKES.

ILLUSTRATED BY COLOURED PLATES AND DIAGRAMS.

BY

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Part X with Plate X and Diagram 1.

(Continued from page 106 of this Volume.)

THE BRIDAL SNAKE (*DRYOCALAMUS NYMPHA*).

Synonym, *Hydrophobus nymphea*.

Nomenclature. (a) *Scientific.*—The generic name from the Greek $\delta\rho\upsilon\varsigma$ a tree and $\kappa\alpha\lambda\alpha\mu\omicron\varsigma$ a reed, was first applied in 1858 by Günther to one of the species known from the Malayan Archipelago, *viz.*, *tristrigatus*. *Nympha* introduced by Daudin in 1803, is from the Greek $\nu\upsilon\mu\phi\eta$ a bride, probably owing to the light coloured heads of the two specimens figured by Russell* in his first volume suggesting to his mind the nuptial veil worn by a bride.

(b) *English.*—The Bridal snake suggests itself to me as appropriate.

(c) *Vernacular.*—The only name I can find is that used by Russell, *viz.*, "Katla vyrien."

Dimensions.—I have seen two specimens measuring 1 foot 8 inches and this is the greatest length known to me.

* Ind. Serp. Plates XXXVI and XXXVII.

Bodily configuration.—The body is cylindrical, slender for its length, and very uniform in girth throughout, perhaps suggesting the form of a reed used in the generic title. The head is moderately flattened, the snout moderately rounded, and the neck evident. The eye is rather large and the iris colourless, so that during life the shape of the pupil which is vertical cannot be seen. The nostril is small. The tail is rather short, being about one-fifth the total length. The belly is strongly angulated on either side. The whole snake is smooth and glossy.

Colour.—Dark-brown or black above, fading somewhat posteriorly with from 35 to 50 conspicuous white or yellowish cross bars in the whole length of the snake. These are most conspicuous anteriorly where they involve 2 or 3 scales vertebally and are more widely separated there than behind. Frequently they are not pure white or yellow, but sullied more or less with a brownish mottling or speckling. In the young they are usually yellow, and often but not always tend to grow whiter with age; those shown in our Plate being remarkably white. The head in the young is yellow or suffused with yellow which tends to become more localized with age and form a more or less conspicuous band on the back of the head. The under parts are pearly-white, creamy, or yellowish throughout and unspotted. It is a very handsome and graceful little snake, the specimens marked with pure white as in our plate being remarkably attractive.

Identification.—(1) The scales are in 13 rows in midbody. (2) The præfrontal besides touching its fellow and the frontal is in contact with 5 (or 6) other shields, *viz.*, the internasal, postnasal, loreal, one or two præoculars and supraocular. (3) The loreal touches the eye. There can be no doubt of its identity if these points are sought for in the order above given and are found to co-exist.

Haunts.—My knowledge of the Bridal Snake, though very limited, points to haunts and habits closely akin to that of the Common Wolf-Snake. The first I encountered was in a house on the banks of the Chilka Lake. Sitting after dinner in a room on the ground floor I saw it moving beneath the chair of a friend. I ran for a stick and tried to kill it, believing it to be a young krait. Had the stick been a flexible cane I would probably have despatched it with the first blow, but I made several ineffectual attempts to strike it, the stick making an angle with the floor passing over it each time. The

reptile thoroughly scared added to my difficulty by its agile movements. When at length it was wounded I would not pronounce upon its identity by lamp light, the gloss on its scales making their detail uncertain, but I felt sure I had been dealing with a krait until the morning light showed me mistaken.

Disposition.—My knowledge of this species is so limited that I cannot speak of its disposition, habits, food or breeding. The smallest specimen I know of is one mentioned by Günther which was $6\frac{1}{4}$ inches (75 lines) and I should think probably a hatchling.

Distribution. (a) *Geographical.*—South India, Orissa, and Ceylon. All the British Museum specimens are from Ceylon and South India. Jerdon speaks of it from Madras, Ferguson from Travancore and I have had two specimens from Orissa (Rumbha and Berhampore), two from Trichinopoly, and one from Madras. The exact localities in Ceylon of the British Museum specimens except Trincomalee are not noted. Haly* says that 5 specimens in the Colombo Museum are from Jaffna, and Willey † only mentions Jaffna and Anuradapura. Ferguson ‡ speaks of one from the South part of the Island without specifying further. This is in the British Museum now, *viz.*, specimen T of Boulenger's Catalogue (Vol. 1, p. 371).

(b) *Local.*—Appears to be chiefly a snake of the Plains, but there are British Museum specimens from the Nallymally, Balarangam, and Cuddapah Hills, altitudes not recorded.

(c) *Numerical.*—I would call it rather an uncommon snake in India, having only collected 5 specimens. Ferguson mentions but two specimens in the large collection at Travancore. Jerdon, however, says it is not rare at Madras.

Lepidosis. Rostral.—Touches 6 shields, the rostro-internasal sutures rather longer than the rostro-nasal. *Internasals.*—Two; the suture between them about three-fourths to equal to that between the præ-frontal fellows, about half or less than half the internaso-præfrontal sutures. *Præfrontals.*—Two; the suture between them subequal to or rather greater than the præfronto-frontal; in contact with the internasal, postnasal, loreal, one or two præoculars, and supraocular. *Frontal.*—Touches 6 shields; the supraocular sutures longest, twice or nearly twice the parietals which are rather the smallest. *Supra-*

* First report, Snakes, Colombo, June 1886, p. 10.

† Spol. Zeylan, April 1906, p. 233.

‡ Rept. Fauna, Ceylon, 1877, p. 19.

Oculars.—Length subequal to, breadth about half that of the frontal. *Nasals*.—More or less divided, or entire and simply perforated by the nostril; in contact with 1st and 2nd labials. *Loreal*.—Single, longer than the nasals, about twice as long as high, touching the eye. *Præocular*.—One, intervening between the loreal and the supraocular. *Postoculars*.—Two. *Temporals*.—Two. *Supralabials*.—7, the 3rd and 4th touching the eye. *Infralabials*.—5, the 5th largest, nearly twice as broad as the posterior sublinguals; in contact with 3 scales behind; the first meet to form a suture half or less than half that between the anterior sublinguals. *Sublinguals*.—Two pairs; the posterior two-thirds to three-fourths the length of the anterior: in contact with the 4th and 5th infralabials. *Costals*.—Two heads-lengths after head 13, midbody 13, two heads-lengths before the anus 13; vertebrals not enlarged, last row not or barely enlarged; not keeled: apical pits present, single. *Ventrals*.—200 to 243* (Boulenger); markedly angulate on each side. *Anal*.—Divided. *Subcaudals*.—65 to 88 (Boulenger), divided. *Anomalies*.—Rarely there are two præoculars. The supralabials are sometimes 6 or 8. In one of my specimens the 10th to the 14th subcaudals were entire.

Two other species of *Dryocalamus*, viz., *gracilis* and *davisoni*, occur within Indian limits. The former should, I think, be noticed here being very like *nympha* in colouration and therefore likely to be confused with the krait. The latter is not like the krait, being striped in a longitudinal direction and is a Malayan snake which just enters our limits in Tenasserim. I shall therefore make no remarks upon it.

THE SCARCE BRIDAL SNAKE (*DRYOCALAMUS GRACILIS*).

Nomenclature. (a) *Scientific*.—The specific title (Latin = graceful) was given by Günther in 1864, in allusion to its graceful form. Like its ally *nympha* it is a very attractive little snake, striking in its dainty colouration and slender outline.

(b) *English*.—The Scarce Bridal Snake, would, I think, be a fitting designation.

(c) *Vernacular*.—It is too uncommon to have been christened in any native dialect.

* There is a decided tendency for these shields to be more numerous in Indian than in Ceylon specimens. Thus in 6 Ceylon examples they range between 200 and 219, and in 19 Indian examples between 216 and 243.

Identification.—If the following points are sought for in the order herein given, there can be no mistake in recognising it. (1) The scales in the middle of the body are in 15 rows. (2) The præfrontal besides touching its fellow and the frontal meets 5 other shields, *viz.*, the internasal, postnasal, loreal, præocular, and supraocular. (3) The loreal touches the eye. (See outline figure Diagram.)

It is a much more uncommon snake than *nympha*, there being but two examples in the British Museum both of which I have examined, I collected two others at Berhampore in Orissa, and have seen a fifth in the Indian Museum which was referred by Selater to its ally *darisoni*. This is recorded doubtfully from False I-land, Arrakan, a most unlikely locality for it to have been collected in. The British Museum specimens are from the Anamallay and Cuddapah Hills. The only other specimens I know of are two recorded from Ceylon by Haly,* one of which he described as a distinct species under the title *fergusonii*. One of my specimens fell from a verandah roof one evening after dinner into the middle of a family circle. It was captured and sent to me, and at first sight I took it to be a young krait. The longest specimen I know of is one of mine which was 1 foot 11 $\frac{7}{8}$ inches.

Lepidosis. Rostral.—Touches 6 shields, the rostro-internasal sutures rather longer than the rostro-nasal. *Internasals.*—Two; the suture between them from three-fourths to equal to that between the præfrontal fellows, equal to or rather less than the internaso-præfrontal sutures. *Præfrontals.*—Two; the suture between them three-fourths to equal to the præfronto-frontal, in contact with the internasal, postnasal, loreal, præocular and supraocular. *Frontal.*—Touches 6 shields, the supraocular sutures longest, nearly or quite twice the fronto-parietals. *Supraoculars.*—Length subequal to, breadth about half that of the frontal. *Nasals.*—More or less divided, in contact with the 1st and 2nd supralabials. *Loreal.*—One, rather longer than the nasals, twice as long as high; touches the eye. *Præocular.*—One. *Postoculars.*—Two. *Temporals.*—Two. *Supralabials.*—7; the 3rd and 4th touching the eye. *Injralabials.*—5, the 5th largest, and in contact with 2 or 3 scales behind. The suture between the first about half that between the anterior sublinguals. *Sublinguals.*—Two pairs; the posterior rather shorter than the anterior, in contact with

* Taprobanian III, 1886, p. 51.

the 4th and 5th infralabials. *Costals*.—Two heads-lengths behind the head 15, midbody 15, two heads-lengths before the anus 15; the vertebrae not enlarged; ultimate row not or barely enlarged; no keels; apical pits present, single. *Ventrals*.—199 to 243, angulate laterally. *Anal*.—Entire. *Subcaudals*.—75 to 87; divided.

Anomalies.—The specimen in the Indian Museum above referred to has the anal divided. The costals vary in individuals. The Anamallay specimen in the British Museum has 13 scale rows for a considerable distance anteriorly, and the Cuddapah Hills specimen in the same Institution 13 for some distance anteriorly and posteriorly. Where the rows are 13 that next to the vertebral is unusually large owing to a confluence of two rows. When the rows reduce again from 15 to 13, the row next to the vertebral coalesces with that below.

THE IRIDESCENT EARTH SNAKE (*XENOPELTIS UNICOLOR*).

Nomenclature. (a) *Scientific*.—The name of the genus was introduced by Reinwardt in 1827, and is from the Greek *ἕδος* strange, *ἄστυ* a shield, in allusion to the unusual disposition, and number of the shields on the top of the head, many of which are quite peculiar to this snake. The specific name was also given by Reinwardt and refers to the uniform dorsal colouration.

(b) *English*.—The Iridescent Earth-Snake is the best name for it, the beautiful play of colours seen in the dorsal black on reflected light calling for special remark.

(c) *Vernacular*.—I know of none.

Dimensions.—It grows to four feet. A specimen which Evans and I collected in Rangoon measured 3 feet 5½ inches, and Colonel Evans has had one 4 feet 1 inch long.

Body configuration, etc.—The body is of remarkably uniform girth in its whole length, and broader in its lateral diameter than in the ventro-vertebral. The head is spatulate, the snout broadly rounded, and the head merges into the body without indication of a neck. The eye is remarkably small and the iris very dark so that the pupil is with difficulty discerned in life. When scrutinised closely the iris is seen to be dark-brown in colour, and the pupil vertically elliptical. The nostril is small, the tail is decidedly short, measuring from about one-tenth to one-eleventh the total length of the snake. The whole snake exhibits an unusually high polish to its scales.

Colouration.—One of the most remarkable characters of this snake which is remarkable in so many ways, is the brilliancy of the iridescence seen on its scales when the light is allowed to glance on them. Flower* thus remarks upon it: "The iridescent colours of this snake are most beautiful, and wonderful. As it crawls along, the curves of its body flash brilliant lights of emerald-green, copper, blood-red, purple and electric-blue, while the actual colour is a very dark rich coffee-brown." The specimens I collected in Burma were black or blue-black rather than brown. The last three costal rows are more or less heavily margined with whitish, the last often uniform whitish. The young are coloured similarly except that they have a yellowish or whitish head, or collar, but no indication of either remains during adult life. Reinwardt thought that these white-headed specimens constituted a distinct species to which he assigned the name *leucocephalus*. The upper lip and underparts are whitish (Flower says pale yellow) with sometimes slatish streaks. The tail is streaked or mottled beneath.

Identification.—The shields are so peculiar in this snake, that one might mention several conditions which are unique, or nearly so, by which identification is certain and easy. Perhaps the easiest way to recognise it is by noticing that the frontal touches 9 other shields. Another method is by the fact that the rostral touches 4 shields, *viz.*, the internasals, and first labials only. In all other snakes where it touches 4 shields only these are the nasals, and first labials. Again excepting two vipers, *viz.*, *Eristocophis memahoni* and *Pseudocerastes persicus* (both of which have only small scales on the top of the head), it is the only snake within Indian limits in which the nasal does not touch the rostral. Again it is the only snake in which the 3rd labial touches the nasal and not the eye.

Haunts.—As its English name implies it is a burrowing snake, living entirely beneath the soil. It is rarely seen above the surface except when following up its quarry or under accidental circumstances. One captured in the upstairs verandah of the General Hospital in Rangoon had probably been conveyed there in the earth of one of the pot plants.

* P. Z. S., 1899, p. 657.

Disposition.—I have had very little experience of it in life, but it is obviously a plucky and vicious reptile from an incident recorded by Theobald* who says: "The following illustrates its ferocious nature. I once remarked a *Ptyas* (= *Zamenis*) *mucosus*, some five feet in length, in the hedge of the Circuit House of Bassein. On running downstairs, the snake had vanished, but in searching I saw its tail sticking out of a hole beneath a wooden plant-case. Do what I might I could not drag it out, as it seemed held fast within. I therefore with some trouble overturned the plant-case, and then saw that the unlucky *Ptyas* was firmly pinned by a large *Xenopeltis* into whose hole it had unwittingly entered. The *Xenopeltis* seemed about four feet in length, but on perceiving itself uncovered, released its hold of the *Ptyas*, and made its escape." Flower says: "A young snake of this species that I kept alive was fairly quiet from the first, and after one day's captivity never attempted to bite when handled. An adult specimen when excited would twist itself into an irregular pile of tight coils, except the tail, which was held on one side, raised from the ground, and the tip kept vibrating at a great speed." Colonel G. H. Evans tells me of one that flattened itself, drew back, and several times snapped at a stick advanced towards it.

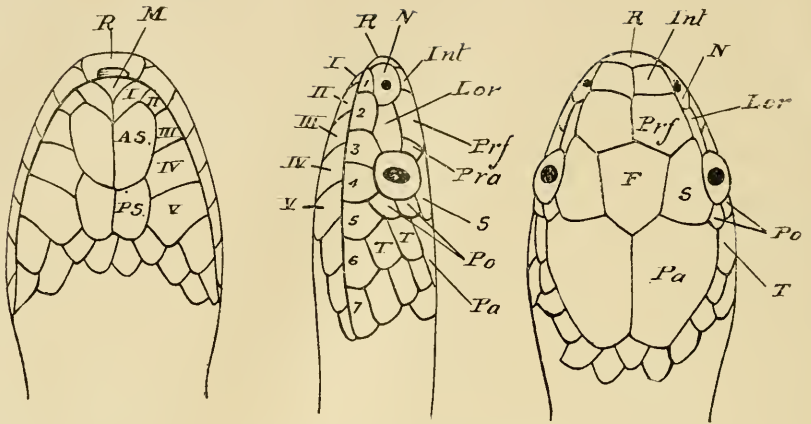
Habits.—The Iridescent Earth Snake is said to be nocturnal in habit. Whether this is strictly speaking true I am not certain. Under cover of subterranean darkness it appears to be very alert during the day judging from the hasty and determined way the one, mentioned by Theobald, attacked and secured its Dhaman intruder. On one occasion in Rangoon one was sent to me in the act of devouring a snake during the day time. The one found in the General Hospital verandah in Rangoon was seen abroad in daylight.

Most of my specimens were met with in the months of July, August and September.

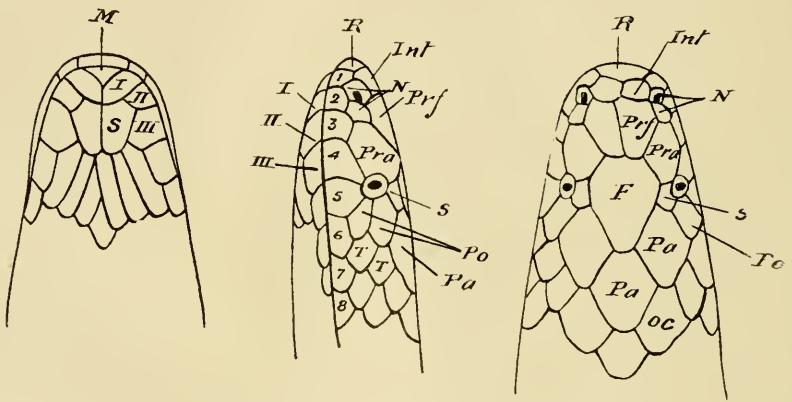
Food.—One in Rangoon had eaten a rat, another a mouse, and a third was eating a snake, the buff striped keel back (*Tropidonotus stolatus*). Günther† says it feeds on small mammals which it hunts for in their subterranean holes. Colonel G. H. Evans tells me the

* Cat. Rept. Brit. Burma, 1868, p. 37.

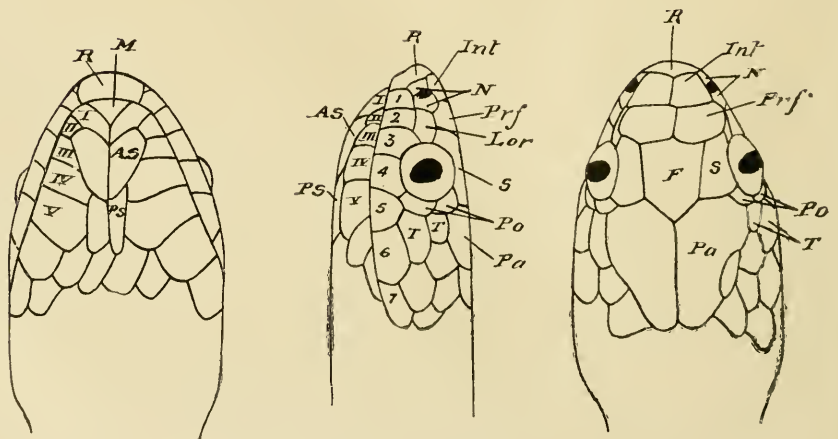
† Rept. Brit. Ind., 1864, p. 181.



DRYOCALAMUS NYMPHA (x2).



XENOPELTIS UNICOLOR (Nat. size).



DRYOCALAMUS GRACILIS (x2 1/2).

large specimen referred to above had eaten two fair-sized rats, and he has found a field rat taken on another occasion.

Breeding.—I know nothing of this, and can find no allusion to the subject.

Distribution. (a) *Geographical.*—Burma, Indo-China, Malay Peninsula and Archipelago.

It is only found in the lower part of the Burmese Province, probably not above the 20th parallel if indeed it reaches as far North as this. In Indo-China it is only recorded from the South. In the Malayan Peninsula it extends from Sumatra to Celebes.

I do not credit South India as part of its habitat, the authority for which rests on a single example from Trichinopoly now in the Indian Museum. If the specimen came from there at all, I feel confident it had been imported.

(b) *Local.*—It is a snake of the Plains and in Lower Burma is quite one of the common species to be met with, about Cantonments and the precincts of men as well as further afield.

Lepidosis. Rostral.—Touches four shields only, *vic.*, the internasals and first labials. *Internasals.*—Two, the suture between them about one-third that between the præfrontal fellows, one-half or less than half the internaso-præfrontal sutures. *Præfrontals.*—Two, the suture between them twice or more than twice the præfronto-frontal suture ; in contact with the internasal, nasal, præocular, and frontal. *Frontal.*—Touches 9 shields, the sutures with the lateral parietals longest, the præocular sutures are longer than the supraocular (another unique character). *Supraoculars.*—About one-third as long, and one-fourth as broad as the frontal. *Parietals.*—Three, a median posterior separating two lateral shields. *Occipitals.*—Two, placed behind the lateral parietals : not in contact. *Nasals.*—Two, the nostril is quite contained in the anterior, and involves about the median two-fourths of the suture between ; not in contact with the rostral ; touches the 1st, 2nd and 3rd labials. *Loreal.*—Absent. *Præocular.*—One large, extensively in contact with the frontal. *Postoculars.*—Two, the upper larger ; almost unique in being as large or larger than the temporals. *Temporals.*—Two. *Supralabials.*—8, the 1st meets the internasal in front of the nasals, the 4th and 5th touch the eye. *Infralabials.*—3, the 3rd largest and in contact with two scales behind. *Sublinguals.*—One pair. *Costals.*—Two heads-lengths behind the head 15, midbody 15 ; two

heads-lengths before anus 15; vertebrals not enlarged; last row slightly if at all enlarged; keels absent everywhere; apical pits absent. *Ventrals*.—175 to 190 (in my Burmese specimens), 180 to 196 (Flower gives for specimens from Siam), 166 to 193 (Boulenger); not very broad, being but twice the breadth of the last costal row and at least two of the last costal rows are visible on each side when the snake is laid over on its back. *Anal*.—Divided. *Subcaudals*.—The 1st or 2nd entire followed by from 24 to 31 paired shields.

Anomalies.—The postocular is single in some specimens.

Dentition.—The *præmaxilla* carries 10 small teeth, 5 on each side.

The *maxilla* supports about 38 small subequal teeth.

The *palato-pterygoid* array are largest in the middle—where they are larger and stronger than all the teeth in the other jaws—and diminish in size before and behind. The palatine number 11 to 13, the pterygoid 12, the latter set occupying about three-fourths the length of jaw that the former does.

The *mandibular* number 32 to 33, and are rather smallest anteriorly and posteriorly. This bone demands special remark from the fact that about two-thirds of the posterior part of the dentary bone (*i. e.*, that part supporting the teeth) is not articulated with the articular bone, but is loose. I believe this peculiarity, at any rate to a proximate degree, is not to be seen in any of the Indian Snakes except the genus *Polyodontophis*.

In Plate VIII of this series we figured some of the kraits which have been confused with one another in the past, and in Plates IX and X we have shown some of the harmless snakes that have been confused with the common krait *B. cæruleus*.

I think the first point that will strike many of the readers of these articles is that snakes, which appear so different with regard to their colour and markings, should be mistaken for one another at all, yet the fact remains that all of the harmless snakes we have dealt with have been wrongly considered kraits by many, and too in some cases not only by people little acquainted with ophiology, but by those in the care of Museum collections, who have specimens at hand with which to compare a doubtful snake. In several Museums I have found specimens of *Lycodons* placed with specimens of *Bungarus* and *vice versa*.

The snake which bears the most marked superficial resemblance to the krait is *Lycodon striatus*. Nearly all the specimens I have seen have been black or blackish, not brown as shown in our plate (IX, fig. 4). Its resemblance to a young krait (*B. cæruleus*) is very remarkable. The dimensions of an adult are about the same as a krait in its first year, both are black, and both have very conspicuous white cross bars. It will be remembered that I remarked upon the conspicuousness of the white bars in the young krait anteriorly, although in the adult they are usually obscure or completely absent in front. Both have the lips, and underparts completely white. In both the eye is a black jet-like bead in which the pupil cannot be discerned. In both the beautiful gloss on the scales claims special attention. Both are extremely likely to be met with inside habitations, and especially at night. On the other hand if one comes to notice scale characters it will be seen how very different the two snakes are, so different indeed that attention to one or two of the many differences can admit of no confusion between them. Thus the enlarged vertebrae of the krait are absent in the *Lycodon* and the subcaudals which are entire in the krait are divided in the *Lycodon*. Besides this the scale rows are 15 in the whole body length of the krait and have no apical pits, the anal shield is always entire, there is no loreal, there is only one temporal, there are but 4 infralabials, added to which the pupil is round. In *L. striatus* on the other hand the scales are 17 in the anterior and mid parts of the body, 15 behind, have single apical pits, the anal is usually divided, a loreal is always present, there are two temporals, 6 infralabials, and the pupil is vertical.

In the two *Dryocalami* dealt with the resemblances to the krait affect the same features detailed under *Lycodon striatus* which are those which most readily catch the eye.

By lamp light I have been deceived as to their identity taking both species at first sight for the krait. The differences in lepidosis between them and the krait are the same as those detailed under *Lycodon striatus*.

It is always a matter of surprise to me that the common variety of the Common Wolf-Snake can be mistaken for the krait. I see very little if any resemblance between the two, still nearly every specimen sent in to me is sent in as a krait. On two or three occasions, however, I have seen a resemblance between the dark variety

(*oligozonatus*) and the krait so striking that I have been very much on my guard in handling it. Once grasped, and its movements controlled all doubts are set at rest at a glance. The resemblances, and differences affect the very points detailed under *Lycodon striatus*.

The Iridescent Earth-snake only resembles the krait (*B. caeruleus*) in being a glossy black. It should never be confused with this snake though for the black is uniform. There might be some justification for its confusion with the black kraits (*lividus* and *niger*), but it only occurs in a geographical area quite distinct from that of these two kraits which are only known from the Brahmaputra Basin, and the low hills in and around it. The absence of enlarged vertebrae, and the divided condition of the subcaudal shields are each sufficient to negative confusion with any krait.

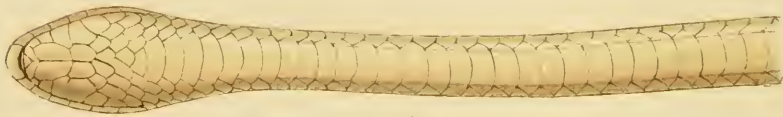
(To be continued).



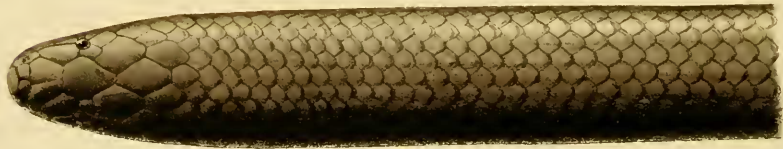
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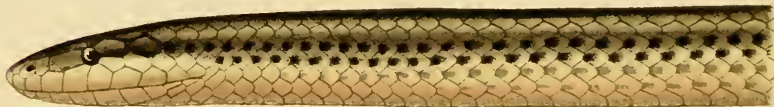
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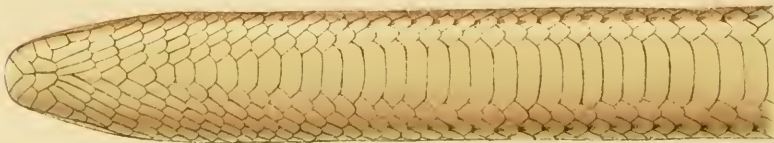
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5.



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THE COMMON INDIAN SNAKES. (Wall).

1,2,3. *Hydrophobus nympha*, harmless. $\times 1$.
4,5,6. *Xenopeltis unicolor*, harmless, $\times 1$.